

CLAIMS

I claim:

1 1. A system for marking a digital recording, wherein the
2 digital recording includes a plurality of tracks,
3 comprising:

4 a mechanism for dividing the digital recording into a
5 plurality of sections and associating a random number with
6 each section;

7 a mechanism for calculating an identifier as a
8 function of the associated random numbers; and

9 a watermarking mechanism for watermarking sections
10 within a block of sections, wherein the watermark for each
11 section includes the random number associated with the
12 section and a portion of the identifier.

1 2. The system of claim 1, wherein the digital recording
2 includes a music recording, and the plurality of tracks
3 include individual songs.

1 3. The system of claim 1, wherein a length of each section
2 is less than a length of each track, and the number of
3 sections is greater than the number of tracks.

4. The system of claim 1, wherein the identifier is a hash.

1 5. The system of claim 1, wherein the watermarking
2 mechanism splits the identifier among the sections within
3 the block.

1 6. A system for verifying a digital recording by ensuring
2 a completeness of the digital recording, comprising:
3 a mechanism for reading watermarks from each of a
4 plurality of sections on the digital recording and
5 extracting a first and second part from each watermark;
6 a mechanism for calculating a first identifier as a
7 function of the extracted first parts;
8 a mechanism for calculating a second identifier based
9 on a subset of the second extracted parts; and
10 a mechanism for comparing the first identifier and the
11 second identifier.

1 7. The system of claim 6, wherein the first part of each
2 watermark is a random number.

1 8. The system of claim 7, wherein the second part of each
2 watermark is a hash of a complete set of random numbers
3 from an original copy of the digital recording.

1 9. The system of claim 6, further comprising a mechanism
2 for terminating further processing of the digital recording
3 if the first and second identifier do not match.

1 10. A program product stored on a recordable media for
2 marking a digital recording having a plurality of tracks
3 that, when executed, comprises:
4 means for assigning a value to each of a plurality of
5 sections within the digital recording;
6 means for calculating an identifier as a function of
7 all of the assigned values; and
8 means for determining a watermark for each section
9 within a block of sections, wherein each watermark includes
10 the value assigned to the section and a portion of the
11 identifier.

1 11. The program product of claim 10, wherein each value
2 is a random number.

1 12. The program product of claim 10, wherein the
2 identifier is a hash.

1 13. The program product of claim 10, wherein the block of
2 sections consists of one section and the portion of the
3 identifier consists of the entire identifier.

1 14. A program product stored on a recordable media for
2 verifying a digital recording that, when executed,
3 comprises:

4 means for reading watermarks from each of a plurality
5 of sections on the digital recording and extracting a first
6 part and a second part from each watermark;

7 means for calculating a first identifier as a function
8 of the extracted first parts;

9 means for calculating a second identifier based on a
10 subset of the second extracted parts; and

11 means for comparing the first identifier and the
12 second identifier.

1 15. The program product of claim 14, wherein the first
2 part of each watermark is a random number.

1 16. The program product of claim 15, wherein the second
2 part of each watermark is a hash of a complete set of
3 random numbers from an original copy of the digital
4 recording.

1 17. A method for preventing unauthorized use of a digital
2 recording, wherein the digital recording includes a
3 plurality of tracks, comprising:
4 encoding the digital recording with the steps of:
5 partitioning the digital recording into a
6 plurality of sections;
7 generating a random number for each section;
8 calculating an identifier as a function of all of
9 the generated random numbers;
10 splitting the identifier into m partitions,
11 wherein m is an integer;
12 grouping the sections into blocks of m sections;
13 and
14 watermarking each section in each block with the
15 random number for the section and one of the m
16 partitions.

1 18. The method of claim 17, further comprising:
2 verifying the digital recording with the steps of:
3 reading the watermark from each section;
4 extracting the random numbers from each section;
5 recalculating the identifier as the function of
6 all of the extracted random numbers;

7 extracting each of the m partitions from a first
8 block of sections;
9 coalescing the m partitions into a second
10 identifier; and
11 comparing the recalculated identifier with the
12 second identifier.

1 19. The method of claim 18, comprising the further step of
2 terminating processing of the digital recording if the
3 recalculated identifier does not match the second
4 identifier.

1 20. The method of claim 17, wherein the identifier is a
2 hash.

1 21. A watermarked digital recording, comprising:
2 a plurality of tracks; and
3 a plurality of sections commingled with the plurality
4 of tracks, wherein each section includes a random value and
5 a value that is dependent on the random values for all of
6 the sections.